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ABSTRACT

A survey to examine male and female attitudes toward locally proposed energy developments (e.g., coal production, refineries) in an Appalachian community is reported. Four hundred and eighty-five residents were questioned on whether they favor the proposed developments; whether they were currently employed in an energy-related occupation; and whether they had a preference for either environmental protection or for energy adequacy. The two factors found to influence attitudes toward industrial development were environmental orientation and occupation in an energy-related job. However, these two variables influence men and women differently. Women environmentalists indicate greater opposition to development; being an environmentalist does not presuppose opposition among men. Also, while men in energy-related jobs support future development, the majority of environmentally oriented women in energy occupations oppose such development. Women view industrial development in terms of environmental or quality of life consequences while men give more weight to economic factors. (Author/KC)

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ABSTRACT

In order to determine why men and women hold contrasting opinions about new energy resource developments, this study examines the differences between men and women in their attitudes toward proposed energy developments and opinions about environmental and quality of life issues. A telephone survey of 485 residents of a rural Appalachian community for which several energy related industries have been proposed showed that women opposed the developments significantly more than did men. Two independent factors were found to influence attitudes toward the industries--whether or not one is environmentally oriented and whether or not one holds an energy related job. However these two variables influence men and women differently. For women, being an "environmentalist" indicates greater opposition to such developments, but environmentalism does not translate into opposition among men. On the other hand, having an energy related occupation can predict industrial support among men, but not among women. These findings support the hypothesis that women view industrial development in terms of environmental or quality of life consequences while men give more weight to economic factors in their industrial development attitudes.

Sex Differences in Attitudes Toward New Energy Resource Developments

The research literature on socioeconomic impacts of energy related developments suggests that women are more likely to experience negative impacts from new resource developments than men (Moen, Boulding, Lillydahl and Palm, 1979; Clemente and Summers, 1973; Albrecht, 1978). Studies of Western boomtown developments have found that from an economic perspective, women do not tend to receive benefits from energy developments, and often experence negative economic impacts from the same development from which men benefit (Clemente and Summers, 1973; Gilmore and Duff, 1975). The high paying construction and mining jobs available in boomtowns do not offer many employment opportunities for women, yet working women suffer from inflation, higher rents, and declining quality of life (Suskind and O'Hare, 1977).

Women who occupy the traditional female roles of wife and mother rather than full-time work roles experience a number of social problems in energy development areas. Wives of boomtown construction workers often suffer problems of social integration, lack of educational and recreational opportunities, inadequate health services, and inadequate housing (Albrecht, 1978; Gilmore and Duff, 1975). It has been noted that boomtown women "are developing mental health problems in significant numbers because of the sense of isolation, boredom, loneliness and frustration" (Canner, 1975). Gold (1974) observed that many women in energy boomtowns are becoming addicted to food and television.

Another problem for women is that single industry communities are designed mainly for employed male workers, which makes it

difficult for women to meet their own and their children's needs (Gilmore and Duff, 1975; Ellis and McGowan, 1981). Some other concerns expressed by boomtown women include: poorly designed housing, job discrimination, inadequate child care facilities, a lack of crisis and support counselling services, and few, if any places outside the home other than the bar or coffee shop where women could meet for social and recreational activities. For example, women in boomtowns in Northern British Columbia are concerned not only with discriminatory hiring practices and inadequate child-care facilities for working mothers but also with inadequate housing. Poor housing design is especially noticeable in northern areas where cold weather forces children to be indoors much of the year and when shift work requires the father to sleep during the day when small children are up and about (Ellis and McGowan, 1981).

In sum, women appear to suffer more negative consequences from energy developments--both socially and economically--than do men of the same community. A partial explanation for this may be that most research concerned with socioeconomic effects of energy developments, and particularly the few studies that have focused on women, have been aimed exclusively at Western boomtown developments. In single industry communities of this type, most of the population has recently migrated into the area to seek jobs with the new industry. Therefore, many of the social and economic impacts experienced by women may be related to the adjustment process of moving into a new area which has a limited social and economic

infrastructure.

Energy developments in the Eastern region of the U.S. (e.g. Appalachia) are not likely to result in boomtown effects. Unlike the sparsely populated Western region, the Appalacian Region is characterized by a more developed social and economic infrastructure. Therefore, even for newcomers to development communities, the social and economic problems of rapid population growth may not be as pronounced as in Western boomtowns. However, among residents of one Appalachian community for which several energy developments have been proposed, women oppose those developments significantly more frequently than men (Stout-Wiegand, Trent and Smith, 1981; 1982). A study of community leaders in a rural eight-county area of Alabama also found women to oppose new energy resource developments significantly more than did men (Bachtel and Molnar, 1981).

In sum, the literature indicates not only that women appear to be more severely impacted by boomtown energy developments than are men, but also that women tend to be more opposed to energy developments, even in the Appalachia Region where the boomtown phenomenon is not likely to occur.

Why do men and women hold contrasting opinions about energy related developments? In an attempt to answer this question, this study examines the differences between men and women in their attitudes toward proposed energy developments and opinions about environmental and quality of life issues.

Procedures

Data for the study were collected from residents of the Monongalia County area in Northern West Virginia during March, 1981. Several energy related developments had been proposed to locate in this area, and by the time of the survey they had been the subject of much controversy in the local media. These developments included a coal liquifaction plant, two coking plants and an industrial park. Given existing residential and transportation patterns, the Monongalia County area was considered to be the primary impact area of the new developments.

Respondents were contacted by telephone using the random digit dialing method of sampling. With this method, residential telephone numbers were drawn at random from the local telephone directory and the last two digits of each number were replaced with random numbers. This method of telephone sampling avoids blocks of business listings while it includes unlisted residential numbers, and it assures respondent anonymity. Interviews were conducted for a two-week period during evenings and weekends, avoiding the normal working hours of the day to reduce a possible bias toward the unemployed. Attitudes and opinions toward the proposed energy developments and about environmental and quality of life issues were collected from 485 area residents for a response rate of 61 percent.

Research Fingings

Despite negative impacts often associated with energy development, particularly among women, men and women alike generally

favor such developments (Maurer and Napier, 1981; Andrews and Bauder, 1967; Bechtel and Molnar, 1981; Summers et al., 1976; Meissen, Seibel and Bronfman, 1980). The participants of this survey are no exception. When asked if they would vote for or against the proposed developments, the majority of the respondents said they would vote for them. However, women said they would vote against the projects significantly more often than did men (see Table 1).

(Table 1 About Here)

Why do women have more negative attitudes toward energy developments than do men, even before the projects have become a reality? Perhaps it is because men and women view energy developments from different perspectives. Bechtel and Molnar's study of community leaders' attitudes toward industrial development suggests that:

> Female leaders tended to view development issues in terms of concrete human impacts on the surrounding community. In contrast, male leaders seeemed to react in terms of a more diffuse idea of new industry as an economic impetus to general economic growth, an end desirable in itself (1981, p. 8).

A number of writers have suggested that traditional sex role socialization in Western culture result in women having a fundamentally more benign, nurturant orientation toward the environment, in contrast to the dominating, rational exploitative male orientation toward the environment (see McStay and Dunlap, 1982). Even if we do not posit deeply engrained differences in

Orientation resulting from sex-specific socialization, we might still expect sex differences on the basis of simple current role differences and how men and women in typical roles are rewarded. In any event, most recent research has found women to be somewhat more environmentally concerned than men (McStay and Dunlap, 1982).

Most new energy developments result in both positive and negative impacts on the area in which they are located. Positive impacts are usually economically related effects such as increased employment opportunities, higher wages, and lower fuel prices. Negative impacts are most often those related to the living environment such as crowding, inadequate social services and pollution. It is hypothesized that men perhaps view these developments in terms of their economic advantages, while women view them in terms of social and environmental disadvantages.

In order to test this hypothesis, attitudes toward pollution and toward environmental protection were measured, and then these attitudes were held constant while the relationship between sex and voting for or against the projects was reexamined. Respondents were first asked whether they thought air pollution is a problem in the area. Nearly equal numbers of people felt air pollution was a problem as felt it was not a problem in the area, however, women felt air pollution was a problem significantly more often than did men (see Table 2).

(Table 2 About Here)

Respondents were also asked to choose between environmental protection and energy adequacy (i.e., "are you more on the side of

adequate energy or more on the side of protecting the environment?"). Although respondents had favored the proposed developments three to one, 55 percent of the sample chose the environmental side of the continuum while 45 percent were more on the side of adequate energy. Males and females again differed significantly in their opinions on the issue, with women more frequently favoring environmental protection (see Table 3).

(Table 3 About Here)

To determine the influence of "environmentalism" on the relationship between sex and industrial support, these two variables--perceived problem of air pollution and energy versus environmental protection--were each held constant while the original relationship was reexamined.

When we looked at the group of respondents who felt that air pollution was a problem in the area, we found that women continued to oppose the industries significantly more than men did ($p < .05$). However, among those who do not perceive air pollution as a local problem, there is no difference between men and women in their support for the industries (see Table 4).

(Table 4 About Here)

The relationship persists when attitudes toward energy versus the environment were held constant. Among those who are more on the side of protecting the environment, women oppose the proposed developments significantly more than men, ($p < .02$); however, there is no difference in support for the industries by sex among those who are more on the side of adequate energy (see Table 5).

(Table 5 About Here)

This seems to indicate that women who are environmentally concerned (i.e. perceive air pollution as a local problem and are more concerned with protecting the environment than with adequate energy) are more likely to oppose industrial development, whereas among men, being environmentally concerned does not translate into oppositon toward energy developments.

Why is it that among "environmentalists", men are much less likely to oppose industrial developments than women? One explanation may be that women are still largely responsible for child care and the domestic tasks associated with the quality of the home environment (Berk and Berk, 1979), therefore women tend to oppose industries that pose a threat to the environment. On the other hand, it is men who have generally been considered the breadwinners of the household and have felt responsible for the economic fate of their families. Therefore if new energy industries mean more jobs or higher wages, then men tend to support them in spite of their threats to the environment.

To explore this hypothesis, we asked employed respondents whether or not their occupation was related to the energy industry, assuming that those with energy related jobs would likely view the developments as potentially beneficial to their economic situation. We then looked at the relationship between sex and industrial support while holding this factor constant. Among those with energy related jobs, women continued to oppose the developments significantly more than men did ($p < .0002$), while no sex differences were found in industrial development attitudes among those who do not work in the energy industry (see Table 6). In

other words, men who hold energy related jobs are overwhelmingly in favor of locating energy developments in the area (95%) while women working in the energy industry are much less in favor of the industries (only 58%).

(Table 6 About Here)

We have discovered two independent factors that influence attitudes toward the development of energy related industries--whether or not one is environmentally oriented and whether or not one holds an energy related job. However these two variables influence men and women differently. For women, being an environmentalist indicates greater opposition to such developments, however environmentalism does not translate into opposition among men. On the other hand, having an energy related occupation can predict industrial support among men, but not among women.

To elaborate further on these relationships, both of the influencing factors were held constant simultaneously to determine their joint influence on the sex-industrial support relationship. Among respondents who are both more concerned with environmental protection than with energy and who hold energy related jobs, there is a strong and significant relationship between sex and industrial support ($p < .006$, gamma = .88). Sixty-four percent of the women versus 10 percent of the men with these characteristics oppose the developments. Among environmentalists without energy-related jobs, no significant sex differences were found in industrial support attitudes (see Table 7).

(Table 7 About Here)

Our data show that men and women respond to proposed energy

developments quite differently. For men, economic ties to industry predict strong support for development whereas for women support is strongest among the minority who are not environmentalists. Thus men and women respond differently and in accordance with concerns that are tied to traditional sex roles. These findings support the hypothesis that women view industrial development in terms of environmental quality while men give more weight to economic factors in their industrial development attitudes.

Discussion and Implications

Men and women in an Appalachian community for which several new energy resource developments have been proposed hold contrasting opinions about these industries. Women tend to oppose the developments significantly more often than do men.

To account for our findings, we reasoned that environmental concern is consistent with a quality of life orientation, whereas energy industry employment is consistent with an economic orientation. The main reason for the sex difference appears to be that women view the developments in terms of the environmental consequences, while men are more concerned with the economic effects of the proposed developments. The nature of energy developments in rural Appalachia is such that the environmental impacts are generally expected to be negative (i.e., crowding, pollution), while the economic impacts are usually viewed as positive effects (i.e., more jobs, higher wages). In light of the literature on socioeconomic impacts of energy developments, it is not difficult to understand why this differenial in perspective exists. It is women

who generally have to deal with the inadequacies of school facilities, day care centers, local shopping, and other social services that result from increased population in their area (Dixon, 1978; Gilmore and Duff, 1975; Albrecht, 1978), while it has been almost exclusively men who directly benefit from the high-paying construction and mining jobs associated with the new developments (Clemente and Summers, 1973; Suskind and O'Hare, 1977). Sex role characteristics are changing with respect to employment and child care responsibilities, and, in the long run, energy resource developments usually create opportunities in businesses and services which are likely to employ women. Nevertheless, in the short run more men benefit from new industries than do women and indeed women are less likely than men to hold favorable attitudes toward such development industries.

More research on sex role characteristics and their relationship to environmental and economic attitudes would lead us to a greater understanding of why men and women hold different values and perceptions of new energy resource developments. In particular, if sex roles are becoming less differentiated, men's and women's attitudes toward local energy developments and the quality of the environment should converge. Monitoring of attitude trends over time will show whether a convergence model applies to sex differences in this area. Further studies of long-range as well as short-term socioeconomic impacts of energy developments, in Appalachia and elsewhere, would enhance our ability to understand the types of impacts that can be expected from energy developments, and how they can be effectively mitigated.

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Table 1. Respondents Favoring vs. Opposing Energy Developments by Sex.

	Male	Female
Favor Developments	83%	71%
Oppose Developments	17%	29%
Total	100% (n=155)	100% (n=235)

$x^2 = 6.1$ $p < .01$ Gamma = .32

Table 2. Perceived Problem of Air Pollution by Sex.

	Male	Female
Air Pollution is a Problem	36%	54%
Air Pollution is not a Problem	64%	46%
Total	100% (n = 187)	100% (n = 291)

$x^2 = 13.4$ $p < .0002$ Gamma = .34

Table 3. Respondent Attitudes Toward Energy Versus the Environment By Sex.

	Male	Female
More for Energy	56%	38%
More for Environmental Protection	44%	62%
Total[a]	100% (n = 179)	100% (n = 282)

$X^2 = 13.5$ $p < .0002$ Gamma = .35

[a] Ns vary from previous table because of uncodable responses.

Table 4. Percent Favoring Energy Developments by Sex, Controlling for Attitudes Toward Air Pollution.

	Male		Female		Gamma	P*
	N	%	N	%		
Air Pollution is a Problem	(38)	74	(72)	58	.36	.05
Air Pollution is not a Problem	(89)	66	(92)	85	.05	NS

* NS: Not significant at the .05 level of significance.

Table 5. Percent Favoring Energy Developments by Sex, Controlling for Attitudes Toward Energy Versus the Environment.

	Male		Female		Gamma	P*
	N	%	N	%		
Favor Environment	(45)	73	(72)	54	.38	.02
Favor Energy	(77)	90	(86)	92	-.18	NS

* NS: Not significant at the .05 level of significance.

Table 6. Percent Favoring Energy Developments by Sex, Controlling for Energy Related Occupation.

	Male		Female		Gamma	P*
	N	%	N	%		
Occupation Energy Related	(55)	95	(14)	58	.86	.0002
Occupation not Energy Related	(43)	68	(55)	64	.10	NS

* NS: Not significant at the .05 level of significance.

Table 7. Percent Favoring Energy Developments by Sex, Among Respondents who Favor the Environment Over Energy, Controlling for Energy Related Occupation.

	Male		Female		Gamma	P*
	N	%	N	%		
Occupation Energy Related	(18)	90	(4)	36	.88	.006
Occupation not Energy Related	(14)	52	(25)	46	.11	NS

* NS: Not significant at the .05 level of significance.